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OCCUPATIONAL EMPLOYMENT SURVEY
BOOKLET OF DEFINITIONS
PAPER AND ALLIED PRODUCTS INDUSTRIES

U.S. DEPARTMENT OF LABOR
BUREAU OF LABOR STATISTICS
OFFICE OF EMPLOYMENT AND
UNEMPLOYMENT STATISTICS

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WAGE INCLUSIONS/EXCLUSIONS

Below is a list of wage components to be included and excluded from an employee's wage rate:

Include

- Base Rate
- Commissions
- Cost-of-Living Allowance
- Deadheading Pay
- Hazard Pay
- Incentive Pay
- Guaranteed Pay
- Longevity Pay
- On-call Pay
- Piece Rate
- Portal-to-Portal Rate
- Production Bonus

Exclude

- Attendance Bonus
- Back Pay
- Draw
- Holiday Premium Pay
- Jury Duty Pay
- Lodging Payments
- Meal Payments
- Merchandise Discounts
- Nonproduction Bonus
(e.g., Christmas Bonus)
- Overtime Pay
- Perquisites
- Profit Sharing Payment
- Relocation Allowance
- Severance Pay
- Shift Differential
- Stock Bonuses
- Tool Allowance
- Tuition Repayments
- Uniform Allowance
- Vacation Pay
- Weekend Pay

OCCUPATIONAL DEFINITIONS

MANAGERIAL AND ADMINISTRATIVE OCCUPATIONS *Include in this division top and middle-level managers, administrators, and executives. Primary duties are policy making, planning, staffing, directing or controlling the activities of industrial, commercial, governmental or other establishments.*

- (1) **FINANCIAL MANAGERS (TREASURERS; CONTROLLERS; ETC.):** Plan, organize, direct, control, or coordinate the financial activities of an organization. Include managers in banks or similar financial institutions who advise on credit and investment policy or negotiate general policy with financial or other institutions.
- (2) **PERSONNEL, TRAINING, AND LABOR RELATIONS MANAGERS (INDUSTRIAL RELATIONS DIRECTORS; BENEFITS DIRECTORS; ETC.):** Plan, organize, direct, control, or coordinate the personnel, training or labor relations activities of an organization. Work involves establishing employer-relations policies; directing the selection, training, and evaluation of employees; administering benefits, safety, and recreation programs; developing wage and salary schedules; coordinating bargaining activities; and advising on labor contract administration.
- (3) **PURCHASING MANAGERS (PROCUREMENT MANAGERS; ETC.):** Plan, organize, direct, control, or coordinate the activities of buyers, purchasing officers, and related workers involved in purchasing materials, products, or services. Include wholesale or retail trade merchandising managers.
- (4) **MARKETING, ADVERTISING, AND PUBLIC RELATIONS MANAGERS (PROMOTION MANAGERS; SALES MANAGERS; ETC.):** Formulate marketing policies, direct sales activities, and plan, organize, and direct advertising and public relations activities for a department, an entire organization, or on an account basis.
- (5) **ADMINISTRATIVE SERVICES MANAGERS (CONTRACT ADMINISTRATORS; ETC.):** Plan, organize, direct, control, or coordinate the supportive services department of businesses, agencies, and organizations. Common examples of Administrative Service Managers are Property Managers and Contract Administrators. Managers who spend less than 80% of their time in administrative services should be classified in another appropriate managerial category. Exclude Procurement Managers.
- (6) **ENGINEERING, MATHEMATICAL, AND NATURAL SCIENCES MANAGERS (DATA PROCESSING MANAGERS; PROGRAMMING MANAGERS; ETC.):** Plan, organize, direct or coordinate activities in such fields as architecture, electronic data processing, engineering, life sciences, physical sciences, statistics and systems analysis. These persons spend the greatest portion of their time in managerial work for which a background consistent with that described for engineers, mathematicians or natural scientists is required.
- (7) **INDUSTRIAL PRODUCTION MANAGERS (QUALITY CONTROL MANAGERS; ETC.):** Plan, organize, direct, control, or coordinate the operational (line) activities and resources necessary for manufacturing products in accordance with cost, quality, and quantity specifications.
- (8) **GENERAL MANAGERS AND TOP EXECUTIVES:** Include both top and mid-level managers whose duties and responsibilities are too diverse and general in nature to be classified in any functional or line area of management and administration. These managers generally work through departmental or subordinate executives.

(9) **ALL OTHER MANAGERS AND ADMINISTRATORS:** Include all other workers in this category not classified separately above. Please identify in Section V (at the end of the form) all occupations included in this category that are numerically important and require substantial training, or are emerging due to technological changes in your industry.

PROFESSIONAL, PARAPROFESSIONAL, AND TECHNICAL OCCUPATIONS Include in this division persons concerned with the theoretical or practical aspects of such fields as science, art, education, law and business relations where substantial post-secondary educational preparation, or equivalent on-the-job training or experience is required.

ACCOUNTANTS, AUDITORS, AND OTHER FINANCIAL SPECIALISTS Include persons engaged in planning and administering accounting services, advising on tax and accountancy problems, conducting audits, and planning and administering other financial activities, such as budget analysis, mortgage approval, credit and underwriting analysis, and foreign exchange trading.

(10) **ACCOUNTANTS AND AUDITORS:** Examine, analyze, and interpret accounting records for the purpose of giving advice or preparing statements and installing or advising on systems of recording costs or other financial and budgetary data.

(11) **ALL OTHER FINANCIAL SPECIALISTS (BUDGET ANALYSTS; ETC.):** Include all other workers in this category not classified separately above. Please identify in Section V (at the end of the form) all occupations included in this category that are numerically important and require substantial training, or are emerging due to technological changes in your industry.

(12) **PURCHASING AGENTS, EXCEPT WHOLESALE, RETAIL, AND FARM PRODUCTS:** Purchase raw or semi-finished materials for manufacturing or purchase machinery, equipment, tools, parts, supplies, or services necessary for the operation of an establishment. Include Contract Specialists, Field Contractors, Purchasers, Price Analysts, Tooling Coordinators, and Media Buyers.

(13) **PERSONNEL, TRAINING, AND LABOR RELATIONS SPECIALISTS (RECRUITERS; ETC.):** Conduct programs of recruitment, selection, placement, training, promotion, welfare, safety, compensation, or separation of employees. May specialize in specific areas such as labor-management relations, counseling, job analysis, position classification, training, or compensation. Exclude occupations in personnel research and in the administration of testing and counseling programs for which a background in psychology is required. Also exclude Employment Interviewers, Private or Public Employment Service.

(14) **COST ESTIMATORS:** Prepare cost estimates for manufacturing of products, construction projects, or services to aid management in bidding on or determining price of products or services. May specialize according to particular service performed or product produced.

(15) **ALL OTHER MANAGEMENT SUPPORT WORKERS (MANAGEMENT ANALYSTS; ETC.):** Include all other workers in this category not classified separately above. Please identify in Section V (at the end of the form) all occupations included in this category that are numerically important and require substantial training, or are emerging due to technological changes in your industry.

ENGINEERS (EXCLUDE SALES ENGINEERS- SEE SALES DIVISION) *Include persons engaged in the practical application of physical laws and principles of engineering for the development and utilization of machines, materials, instruments, processes, and services. Include Engineers in research, development, production, technical services, and other positions which require knowledge normally obtained through completion of a 4-year engineering college program. Exclude persons trained in engineering but currently working in positions not requiring engineering training.*

- (16) **CHEMICAL ENGINEERS (CHEMICAL RESEARCH OR TEST ENGINEERS; ETC.):** Design chemical plant equipment and devise processes for manufacturing chemicals and products, such as gasoline, synthetic rubber, plastics, detergents, cement, and paper and pulp, applying principles and technology of chemistry, physics, and engineering. Exclude Sales Engineers and report them as Sales Workers.
- (17) **ELECTRICAL AND ELECTRONIC ENGINEERS (ELECTRICAL PRODUCTS AND SYSTEMS ENGINEERS; POWER DISTRIBUTION OR TRANSMISSION ENGINEERS; ETC.):** Design, develop, test and supervise the manufacture and installation of electrical and electronic equipment, components or systems for commercial, industrial, military or scientific use. Exclude Sales Engineers and report them as Sales Workers and exclude Computer Engineers.
- (18) **COMPUTER ENGINEERS (SYSTEMS ENGINEERS, EDP; COMPUTER-APPLICATIONS ENGINEERS; ENGINEERING ANALYSTS; ETC.):** Analyze data processing requirements to determine EDP system that will provide system capabilities required for projects or workloads, and plan layout of new system installation or data processing principles and equipment. May formulate mathematical models of systems and set up and control analog or hybrid computer system to solve scientific and engineering problems. Exclude Sales Engineers and report them as Sales Workers.
- (19) **INDUSTRIAL ENGINEERS, EXCEPT SAFETY (TIME STUDY ENGINEERS; INDUSTRIAL QUALITY CONTROL ENGINEERS; ETC.):** Perform a variety of engineering work in planning and overseeing the utilization of production facilities and personnel in department or other subdivision of industrial establishment. Plan equipment layout, workflow, and accident prevention measures to maintain efficient and safe utilization of plant facilities. Plan and oversee work, study and training programs to promote efficient worker utilization. Develop and oversee quality control, inventory control, and production record systems. Industrial Product Safety Engineers should be reported as Safety Engineers.
- (20) **MECHANICAL ENGINEERS (TOOL DESIGN ENGINEERS; FACILITIES OR PRODUCTS MECHANICAL ENGINEERS; PLANT EQUIPMENT ENGINEERS; ETC.):** Perform a variety of engineering work in the planning and designing of tools, engines, machines, and other mechanically functioning equipment; and oversee installation, operation, maintenance, and repair of such equipment, including centralized heat, gas, water, and steam systems. Exclude Sales Engineers and report them as Sales Workers.
- (21) **ALL OTHER ENGINEERS (PACKAGING ENGINEERS; PETROLEUM ENGINEERS; SAFETY ENGINEERS; ETC.):** Include all other workers in this category not classified separately above. Please identify in Section V (at the end of the form) all occupations included in this category that are numerically important and require substantial training, or are emerging due to technological changes in your industry.

ENGINEERING AND RELATED TECHNICIANS AND TECHNOLOGISTS *Include persons who assist Engineers, Architects, or Surveyors and Mapping Scientists in laboratory or production activities, such as research, development, data collection, equipment or machine design, testing, quality control, and efficiency studies. Normally these technicians work under the general supervision of Engineers, Architects, or Surveyors and Mapping Scientists, utilizing basic knowledge of principles and techniques in specific areas of engineering, science, mathematics, drafting, and surveying and mapping. Repair Technicians whose work is primarily maintenance and not developmental are excluded and should be reported as Mechanics and Repairers.*

(22) ELECTRICAL AND ELECTRONIC ENGINEERING TECHNICIANS AND TECHNOLOGISTS (RESEARCH INSTRUMENTATION TECHNICIANS; ETC.): Apply electrical and electronic theory and related knowledge to design, build, test, repair, and modify developmental, experimental, or production electrical equipment in industrial or commercial plants and for subsequent use by engineering personnel in making engineering design and evaluation decisions.

(23) INDUSTRIAL ENGINEERING TECHNICIANS AND TECHNOLOGISTS (TIME STUDY TECHNICIANS; ETC.): Study and record time, motion, method, and speed involved in performance of production, maintenance, clerical, and other worker operations for such purposes as establishing standard production rates or improving efficiency. Usually work under the direction of engineering staff.

(24) MECHANICAL ENGINEERING TECHNICIANS AND TECHNOLOGISTS (OPTOMECHANICAL TECHNICIANS; HEAT TRANSFER TECHNICIANS; TOOL OR DIE DRAWING CHECKERS; ETC.): Apply theory and principles of mechanical engineering to develop and test machinery and equipment under direction of engineering staff and physical scientists.

(25) DRAFTERS (DETAIL DRAFTERS; STRUCTURAL DRAFTERS; MECHANICAL DRAFTERS; ETC.): Prepare clear, complete and accurate working plans and detail drawings from rough or detailed sketches or notes for engineering or manufacturing purposes according to specified dimensions. Utilize knowledge of various machines, engineering practices, mathematics, building materials, and other physical sciences to complete drawings. May use computer-assisted drafting (CAD) equipment and software and be designated CAD drafter.

(26) ALL OTHER ENGINEERING AND RELATED TECHNICIANS AND TECHNOLOGISTS (CHEMICAL ENGINEERING TECHNICIANS; ETC.): Include all other workers in this category not classified separately above. Please identify in Section V (at the end of the form) all occupations included in this category that are numerically important and require substantial training, or are emerging due to technological changes in your industry.

PHYSICAL SCIENTISTS *Include persons engaged in research, development, production, or providing technical services pertaining to the physical universe (i.e. Geologists, Chemists, Physicists, etc.). Work may focus on increasing the basic knowledge of the physical universe or the application of these scientific principles and theories to specific problems and situations. Physical Scientists are engaged in scientific work which requires knowledge normally obtained by completion of a 4-year physical sciences college program. Exclude Biophysicists and Biochemists and report them as Life Scientists.*

(27) CHEMISTS, EXCEPT BIOCHEMISTS (ANALYTICAL CHEMISTS; PHYSICAL CHEMISTS; POLLUTION CONTROL CHEMISTS; ETC.): Conduct chemical tests, qualitative and quantitative chemical analyses or chemical experiments in laboratories for quality or process control or to develop new products or knowledge.

(28) **ALL OTHER PHYSICAL SCIENTISTS (ENVIRONMENTAL SCIENTISTS; WATER QUALITY ANALYSTS; ETC.):** Include all other workers in this category not classified separately above. Please identify in Section V (at the end of the form) all occupations included in this category that are numerically important and require substantial training, or are emerging due to technological changes in your industry.

(29) **LIFE SCIENTISTS:** Include persons engaged in research, development, production, or providing technical services pertaining to the life sciences (Agricultural, Biological, Medical Scientists, etc.). Work may focus on increasing the basic knowledge of life sciences or the application of scientific principles and theories to specific problems and situations. Life Scientists engage in scientific work which requires knowledge normally obtained by completion of a 4-year life sciences college program. Include Biophysicists and Biochemists.

PHYSICAL AND LIFE SCIENCE TECHNICIANS AND TECHNOLOGISTS Include persons who assist physical and life scientists in laboratory and production activities, such as laboratory analysis; quality control; design and maintenance of special apparatus, plant, and equipment; and developing industrial processes. Normally these technicians work under the direct supervision of a Physical or Life Scientist and assist in those activities which are more routine. Exclude Medical and Dental Technicians and Technologists.

(30) **CHEMICAL TECHNICIANS AND TECHNOLOGISTS, EXCEPT HEALTH:** Conduct chemical and physical laboratory tests to assist scientists in making qualitative and quantitative analyses of solids, liquids, and gaseous materials for purposes such as research and development of new products or processes, quality control, maintenance of environmental standards, and other work involving experimental, theoretical, or practical application of chemistry and related sciences.

(31) **ALL OTHER PHYSICAL AND LIFE SCIENCE TECHNICIANS AND TECHNOLOGISTS (AIR ANALYSIS TECHNICIANS; ETC.):** Include all other workers in this category not classified separately above. Please identify in Section V (at the end of the form) all occupations included in this category that are numerically important and require substantial training, or are emerging due to technological changes in your industry.

(32) **SYSTEMS ANALYSTS, ELECTRONIC DATA PROCESSING (PROGRAMMER ANALYSTS; SOFTWARE SYSTEMS ANALYSTS; INFORMATION SCIENTISTS; ETC.):** Analyze business, scientific, and technical problems for application to electronic data processing systems. Exclude persons working primarily as Engineers, Mathematicians, or Scientists.

(33) **COMPUTER PROGRAMMERS (BUSINESS, SCIENTIFIC, OR ENGINEERING PROGRAMMERS; ETC.):** Convert symbolic statements of administrative data, business, scientific, engineering, and other technical problem formulations to detailed logical flow chart for coding into computer language; develop and write computer programs to store, locate, and retrieve specific documents, data, and information.

(34) **COMPUTER PROGRAMMER AIDES (PROGRAM CODERS; ETC.):** Assist Computer Programmers or Systems Analysts by performing computer related tasks such as entering completed programs for conversion to machine instructions, writing simple programs to retrieve data, and other duties to assist in the processing of data or to control industrial processes.

(35) **ALL OTHER COMPUTER SCIENTISTS:** Include all other workers in this category not classified separately above. Please identify in Section V (at the end of the form) all occupations included in this category that are numerically important and require substantial training, or are emerging due to technological changes in your industry.

(36) **HEALTH PRACTITIONERS, TECHNOLOGISTS, TECHNICIANS, AND RELATED HEALTH OCCUPATIONS (PHYSICIANS; NURSES; DIETITIANS; THERAPISTS; ETC.):** Include persons concerned with the prevention and diagnosis of human and animal ailments; maintenance and care of illness through nursing care, compounding drugs, nutritional programs, therapy treatment; medical laboratory testing; and medical records technology.

(37) **DESIGNERS, EXCEPT INTERIOR DESIGNERS (PACKAGE DESIGNERS; ETC.; EXCLUDE ENGINEERS):** Design or arrange objects and materials to achieve artistic or decorative affects for apparel or other commercial items. May also create, mark out, or draw designs for items, such as furniture and machinery (product design). Designers are generally categorized according to articles or products designed, such as Clothes Designers, Industrial Designers, or according to type of design work, such as Embroidery Designers. Include Layout Artists.

(38) **ALL OTHER PROFESSIONAL, PARAPROFESSIONAL, AND TECHNICAL WORKERS (TECHNICAL WRITERS; WRITERS AND EDITORS; ETC.):** Include all other workers in this category not classified separately above. Please identify in Section V (at the end of the form) all occupations included in this category that are numerically important and require substantial training, or are emerging due to technological changes in your industry.

SALES AND RELATED OCCUPATIONS Include in this division persons selling goods or services and others directly related to sales.

(39) **FIRST LINE SUPERVISORS AND MANAGER/SUPERVISORS- SALES AND RELATED OCCUPATIONS (SALES REPRESENTATIVE SUPERVISORS; SALES CLERK SUPERVISORS; ETC.):** Directly supervise and coordinate activities of marketing, sales, and related workers. In addition to their supervisory duties, may perform management functions, such as budgeting, accounting, marketing, and personnel work.

(40) **SALES ENGINEERS:** Sell business goods and services that require a technical background equivalent to a baccalaureate degree in engineering. Exclude Engineers whose primary function is not marketing or sales.

(41) **SALES REPRESENTATIVES, SCIENTIFIC AND RELATED PRODUCTS AND SERVICES, EXCEPT RETAIL (TECHNICAL SALES REPRESENTATIVES; ETC.):** Sell products or services requiring scientific or similar knowledge. This knowledge is in areas such as biology, engineering, chemistry, and electronics, and is normally obtained from 2 or 3 years of post secondary education or its equivalent. Sell products such as aircraft, agricultural equipment and supplies, industrial machinery, medical supplies, electronic equipment, chemicals, and precision instruments. Exclude Sales Engineers whose background or equivalent knowledge is equal to a bachelors degree in engineering.

(42) **SALES REPRESENTATIVES, EXCEPT SCIENTIFIC AND RELATED PRODUCTS OR SERVICES AND RETAIL (PAPER PRODUCTS SALES REPRESENTATIVES; ETC.):** Sell goods and services for wholesalers or manufacturers to businesses or groups of individuals. Work requires a substantial knowledge of the items sold. Solicit orders from established clients or secure new customers.

(43) **ALL OTHER SALES AND RELATED WORKERS (SALES CLERKS; DEMONSTRATORS AND PROMOTERS; ETC.):** Include all other workers in this category not classified separately above.

CLERICAL AND ADMINISTRATIVE SUPPORT OCCUPATIONS Include in this division persons performing office and plant clerical tasks, such as typing, filing, computer operating, records keeping (personnel, stock, production, billing, etc.), and mail preparation and distributing.

(44) **FIRST LINE SUPERVISORS AND MANAGER/SUPERVISORS- CLERICAL AND ADMINISTRATIVE SUPPORT OCCUPATIONS (TYPING SUPERVISORS; BOOKKEEPING CLERK SUPERVISORS; ETC.):** Directly supervise and coordinate activities of clerical and administrative support workers. Manager/Supervisors are generally found in smaller establishments where they perform both supervisory and management functions, such as accounting, marketing, and personnel work. In addition, Manager/Supervisors may also engage, in part, in the same clerical work as the workers they supervise.

(45) **ADJUSTMENT CLERKS (CUSTOMER SERVICE REPRESENTATIVES; CUSTOMER COMPLAINT CLERKS; ETC.):** Investigate and resolve customers' inquiries concerning merchandise, service, billing, or credit rating. Examine pertinent information to determine accuracy of customers' complaints and responsibility for errors. Notify customers and appropriate personnel of findings, adjustments, and recommendations, such as exchange of merchandise, refund of money, credit to customers' accounts, or adjustment of customers' bills.

(46) **SECRETARIES, EXCEPT LEGAL AND MEDICAL:** Relieve officials of clerical work and minor administrative and business detail by scheduling appointments, giving information to callers, taking dictation, composing and typing routine correspondence (using typewriter or word processor), reading and routing incoming mail, and filing correspondence and other records. May perform various other assigned clerical duties.

(47) **STENOGRAPHERS (STENOTYPE OPERATORS; ETC.):** Take dictation in shorthand of correspondence, reports, and other material and operate typewriter or word processor to transcribe dictated material. Also perform variety of clerical duties, except when working in a stenographic pool. In addition to stenographic duties, may transcribe material from sound recordings.

(48) **RECEPTIONISTS AND INFORMATION CLERKS (APPOINTMENT CLERKS; ETC.):** Answer inquiries and obtain information for general public (customers, visitors, and other interested parties) concerning activities conducted at an establishment, location of offices or persons within firm, departments within store, or services within hotel. May perform variety of other clerical duties. Exclude Receptionists who operate switchboards.

(49) **TYPISTS, INCLUDING WORD PROCESSING:** Use typewriters or word processing equipment to type letters, reports, forms, or other straight copy material from rough draft, corrected copy, or voice recording. May perform other clerical duties as assigned. Key punchers are classified as Data Entry Keyers. Secretaries and Stenographers may also use word processing equipment but are excluded from this category.

(50) **PERSONNEL CLERKS, EXCEPT PAYROLL AND TIMEKEEPING:** Compile and keep personnel records. Record data for each employee, such as address, weekly earnings, absences, amount of sales or production, supervisory reports on ability, and on date of and reason for termination. Compile and type reports from employment records. File employment records. Search employee files and furnish information to authorized persons.

(51) **FILE CLERKS (TAPE LIBRARIANS; ETC.):** File correspondence, cards, invoices, receipts, and other records in alphabetical or numerical order or according to the filing system used. Locate and remove material from file when requested. May be required to classify and file new material.

(52) **ORDER CLERKS- MATERIALS, MERCHANDISE, AND SERVICE (TELEPHONE ORDER CLERKS; MAIL ORDER CLERKS; ETC.):** Receive and process incoming orders for materials, merchandise, or services such as repairs, installations, or rental of facilities. Additional duties include informing customers of receipt of order, prices, shipping dates, and delays; preparing contracts; and handling complaints. Workers who dispatch as well as take orders for services should be reported as Dispatchers.

(53) **PROCUREMENT CLERKS (PURCHASING CLERKS; ETC.):** Compile information and records to draw up purchase orders for procurement of material.

(54) **BOOKKEEPING, ACCOUNTING, AND AUDITING CLERKS (BILLING CHECKERS; ETC.):** Compute, classify, and record numerical data to keep sets of financial records complete. Perform any combination of routine calculating, posting, and verifying duties to obtain primary financial data for use in maintaining accounting records. May also check the accuracy of figures, calculations, and postings pertaining to business transactions recorded by other workers. Workers whose primary duty is operation of special office machines are classified as Billing, Posting, and Calculating Machine Operators.

(55) **PAYROLL AND TIMEKEEPING CLERKS (ATTENDANCE CLERKS; COMMISSION CLERKS; ETC.):** Compute wages and post wage data to payroll records and/or keep a daily record showing time of arrival and departure from work of employees. Compute earnings from timesheets and work tickets using calculator. Operate posting machine to compute and subtract deductions. Enter net wages on earnings record card, check stub, and payroll sheet.

(56) **BILLING, COST AND RATE CLERKS (MANIFEST CLERKS; ETC.):** Compile data, compute fees and charges, and prepare invoices for billing purposes. Duties also include computing costs and calculating rates for goods, services, and shipment of goods; posting data and keeping other relevant records. May involve use of typing, adding, calculating, and bookkeeping machines. Workers whose primary duty is operation of special office machines are classified as Billing, Posting, and Calculating Machine Operators. Workers calculating charges for passenger transportation are classified as Reservation and Transportation Ticket Agents.

(57) **GENERAL OFFICE CLERKS:** Workers should be classified as General Office Clerks only if their duties are too varied and diverse to be classified in any specific office clerical occupation. Clerical duties may be assigned in accordance with the office procedures of individual establishments and may include a combination of bookkeeping, typing, stenography, office machine operation, and filing.

ELECTRONIC DATA PROCESSING AND OTHER OFFICE MACHINE OCCUPATIONS
Include workers who specialize in the operation of office machines, such as computers, billing machines, copiers, addressing and mailing machines, collators, data key-entry machines, etc. NOTE: Although most office workers operate "office machines" as part of their work, the workers in this category spend the majority of their time in machine operation. Typists are excluded from this category.

(58) **BILLING, POSTING, AND CALCULATING MACHINE OPERATORS (INVOICE MACHINE OPERATORS; BOOKKEEPING AND BILLING MACHINE OPERATORS; ETC.):** Operate machines that automatically perform mathematical processes, such as addition, subtraction, multiplication, division, and extraction of roots, to calculate and record billing, accounting, statistical, and other numerical data. Duties also include operating special billing machines, generally combination typing and adding machines, to prepare statements, bills, and invoices, and the operation of bookkeeping machines to copy and post data, make computations, and compile records of transactions.

(59) **COMPUTER OPERATORS, EXCEPT PERIPHERAL EQUIPMENT (CONSOLE OPERATORS; ETC.):** Monitor and control electronic computer to process business, scientific, engineering, and other data according to operating instructions. Exclude operators who control peripheral equipment only.

(60) **DATA ENTRY KEYERS, EXCEPT COMPOSING (KEYPUNCHERS; VERIFIER OPERATORS; ETC.):** Operate keypunch or key entry devices to prepare data processing input materials on cards, disk or tape. Duties include machine entry recording, coding, or verifying alphabetic or numeric data.

(61) **ALL OTHER OFFICE MACHINE OPERATORS:** Include all other workers in this category not classified separately above. Please identify in Section V (at the end of the form) all occupations included in this category that are numerically important and require substantial training, or are emerging due to technological changes in your industry.

(62) **SWITCHBOARD OPERATORS (SWITCHBOARD RECEPTIONISTS; PBX OPERATORS; ETC.):** Operate cord or cordless switchboard to relay incoming, outgoing, and interoffice calls. May supply information to callers and record messages. In addition to performing duties of Switchboard Operator, may also act as receptionist and perform routine clerical work and typing.

MATERIAL RECORDING, SCHEDULING, DISPATCHING, AND DISTRIBUTING OCCUPATIONS Include persons concerned with dispatching equipment, materials and workers, examining orders for goods and services; receiving, storing, scheduling, issuing, shipping, requisitioning, and accounting for material in store, in use, or in production. Include occupations such as Dispatchers, Production and Planning Clerks, Expeditors, Shipping Clerks, Stock Clerks, Meter Readers, Weighers, Checkers, and Samplers. In manufacturing, these workers are often closely related to clerical functions involved with the production process.

(63) **PRODUCTION, PLANNING, AND EXPEDITING CLERKS (EXPEDITERS; PRODUCTION CONTROL CLERKS; ASSIGNMENT CLERKS; ETC.):** Duties are primarily clerical in nature and involve coordinating and expediting the flow of work and materials within or between departments of an establishment according to production schedule. This includes reviewing and distributing production schedules and work orders, conferring with department supervisors to determine progress of work and completion dates, and compiling reports on progress of work and production problems. Duties may also include scheduling workers and estimating costs, routing and delivering parts to insure production quotas are met, and scheduling shipment of parts. May keep inventory of material in departments and insure that merchandise is shipped by vendor on promised date. May write special orders for services and merchandise. Workers whose primary duty concerns weighing, measuring, and checking merchandise, supplies, and equipment are classified as Weighers, Measurers, and Checkers, Recordkeeping. Workers concerned with material expediting of a nonclerical nature are classified in Helpers, Laborers, and Material Handlers.

(64) **WEIGHERS, MEASURERS, CHECKERS, AND SAMPLERS- RECORDKEEPING:** Duties are primarily clerical in nature and involve weighing, measuring, and checking materials, supplies, and equipment for the purpose of keeping relevant records. Also include workers who collect and keep record of samples of products or materials. Exclude Production Samplers and Weighers.

(65) **STOCK CLERKS- STOCKROOM, WAREHOUSE OR STORAGE YARD (STOCKROOM INVENTORY CLERKS; WAREHOUSE RECORD CLERKS; TOOL-CRIB ATTENDANTS; ETC.):** Receive, store, and issue materials, equipment, and other items from stockroom, warehouse, or storage yard. Keep records and compile stock reports. Exclude stockroom laborers and workers whose primary duties involve shipping, weighing, and checking.

(66) **SHIPPING, RECEIVING, AND TRAFFIC CLERKS (SHIPPING PACKERS; FREIGHT CLERKS; ETC.):** Verify and keep records on incoming and outgoing shipments and prepare items for shipment. Duties include assembling, addressing, stamping, and shipping merchandise or material; receiving, unpacking, verifying, and recording incoming merchandise or material; and arranging for the transportation of products. Exclude Laborers, Stock Clerks, and workers whose primary duties involve weighing and checking.

(67) **ALL OTHER MATERIAL RECORDING, SCHEDULING, AND DISTRIBUTING WORKERS:** Include all other workers in this category not classified separately above.

(68) **ALL OTHER CLERICAL AND ADMINISTRATIVE SUPPORT WORKERS (MESSENGERS; ETC.):** Include all other workers in this category not classified separately above.

SERVICE OCCUPATIONS Include in this division workers in occupations relating to protective service, food service, health assisting service, cleaning and building service, and personal service.

(69) **FIRST LINE SUPERVISORS AND MANAGER/SUPERVISORS- SERVICE:** Include persons who directly supervise and coordinate activities of workers who provide protective services, food services, health assisting services, cleaning and building services, personal services, and other services. Manager/Supervisors are generally found in smaller establishments where they perform both supervisory and management functions, such as accounting, marketing, and personnel work. In addition, Manager/Supervisors may also engage, in part, in the same work as the workers they supervise. Exclude work leaders who spend 20% or more of their time at tasks similar to those of employees under their supervision and report them in the occupations which are most closely related to their specific work duties.

(70) **GUARDS AND WATCH GUARDS:** Stand guard at entrance gate or walk about premises of business or industrial establishment to prevent theft, violence, or infractions of rules; guard property against fire, theft, vandalism, and illegal entry; direct patrons or employees and answer questions relative to services of establishment; control traffic to and from buildings and grounds. Include workers who perform these functions using a car patrol.

CLEANING AND BUILDING SERVICE OCCUPATIONS Include workers who clean and maintain the upkeep of hotels, apartments, buildings, or private households. In commercial establishments these workers may have additional duties such as tending furnaces, routine maintenance, or cleaning sidewalks. Both heavy and light cleaning workers are included. Building Service Workers also operate elevators or perform pest control. Workers whose primary duty is repair should be reported as Mechanics or Repairers.

(71) **JANITORS AND CLEANERS, EXCEPT MAIDS AND HOUSEKEEPING CLEANERS:** Keep building in clean and orderly condition. Perform heavy cleaning duties, such as operating motor-driven cleaning equipment, mopping floors, washing walls and glass, and removing rubbish. May have additional duties and responsibilities, such as tending furnace and boiler, performing routine maintenance activities, notifying management of need for repairs and additions, and cleaning snow or debris from sidewalk.

(72) **ALL OTHER CLEANING AND BUILDING SERVICE WORKERS (ELEVATOR OPERATORS; ETC.):** Include all other workers in this category not classified separately above.

(73) ALL OTHER SERVICE WORKERS (FOOD AND BEVERAGE PREPARATION WORKERS; ETC.): Include all other workers in this category not classified separately above. Please identify in Section V (at the end of the form) all occupations included in this category that are numerically important and require substantial training, or are emerging due to technological changes in your industry.

AGRICULTURAL, FORESTRY, FISHING, AND RELATED OCCUPATIONS Include in this Division workers concerned with agricultural production, forestry, and fishing. Also included in this division are agriculture related workers such as animal caretakers and groundskeepers.

(74) FIRST LINE SUPERVISORS-AGRICULTURAL, FORESTRY, FISHING, AND RELATED OCCUPATIONS: Directly supervise and coordinate the activities of agricultural, forestry, fishing and related workers. May supervise helpers assigned to these workers. Manager/Supervisors are generally found in smaller establishments where they perform both supervisory and management functions, such as accounting, marketing, and personnel work. In addition, Manager/Supervisors may also engage, in part, in the same agricultural work as the workers they supervise. Exclude work leaders who spend 20% or more of their time at tasks similar to those of employees under their supervision and report them in the occupations which are most closely related to their specific work duties.

(75) LOG HANDLING EQUIPMENT OPERATORS: Operate track or wheel type log handling equipment to unload log trucks and/or gondolas and deck logs by species, size, and sort. May move logs by species, size, and sort. May move logs from storage area to deck sawyer or barker area. Usually work in "dry pond" areas, but may unload logs and drop in pond.

(76) ALL OTHER AGRICULTURAL, FORESTRY, FISHING, AND RELATED WORKERS (LOGGING TRACTOR OPERATORS; ETC.): Include all other workers in this category not classified separately above. Please identify in Section V (at the end of the form) all occupations included in this category that are numerically important and require substantial training, or are emerging due to technological changes in your industry.

PRODUCTION, CONSTRUCTION, OPERATING, MAINTENANCE, AND MATERIAL HANDLING OCCUPATIONS Include in this Division all skilled, semiskilled, and unskilled workers performing machine and manual tasks involving production, construction, operating, maintenance, repair, and material handling operations.

(77) FIRST LINE SUPERVISORS AND MANAGER/SUPERVISORS- MECHANICS, INSTALLERS, AND REPAIRERS: Directly supervise and coordinate activities of mechanics, repairers and installers. May also supervise helpers assigned to these workers. Manager/Supervisors are generally found in smaller establishments where they perform both supervisory and management functions, such as accounting, marketing, and personnel work. In addition, Manager/Supervisors may also engage, in part, in the same repair work as the workers they supervise. Exclude work leaders who spend 20% or more of their time at tasks similar to those of employees under their supervision and report them in the occupations which are most closely related to their specific work duties.

(78) FIRST LINE SUPERVISORS AND MANAGER/SUPERVISORS- CONSTRUCTION TRADES AND EXTRACTIVE WORKERS: Directly supervise and coordinate activities of construction or extractive workers. Manager/Supervisors are generally found in smaller establishments where they perform both supervisory and management functions, such as accounting, marketing, and personnel work. In addition, Manager/Supervisors may also engage, in part, in the same construction work as the workers they supervise. Exclude work leaders who spend 20% or more of their time at tasks similar to those of employees under their supervision and report them in the occupations which are most closely related to their specific work duties.

(79) FIRST LINE SUPERVISORS AND MANAGER/SUPERVISORS- PRODUCTION AND OPERATING WORKERS: Directly supervise and coordinate activities of production and operating workers, such as testers, precision workers, machine setters and operators, assemblers, fabricators, or plant and system operators. Manager/Supervisors are generally found in smaller establishments where they perform both supervisory and management functions, such as accounting, marketing, and personnel work. In addition, Manager/Supervisors may also engage, in part, in the same production work as the workers they supervise. Exclude work leaders who spend 20% or more of their time at tasks similar to those of employees under their supervision and report them in the occupations which are most closely related to their specific work duties.

(80) FIRST LINE SUPERVISORS AND MANAGER/SUPERVISORS- TRANSPORTATION AND MATERIAL MOVING MACHINE AND VEHICLE OCCUPATIONS: Directly supervise and coordinate activities of transportation and material moving machine operators. May supervise helpers assigned to these workers. Manager/Supervisors are generally found in smaller establishments where they perform both supervisory and management functions, such as accounting, marketing, and personnel work. In addition, Manager/Supervisors may also engage, in part, in the same material moving work as the workers they supervise. Exclude work leaders who spend 20% or more of their time at tasks similar to those of employees under their supervision and report them in the occupations which are most closely related to their specific work duties.

(81) FIRST LINE SUPERVISORS AND MANAGER/SUPERVISORS- HELPERS, LABORERS, AND MATERIAL MOVERS, HAND: Directly supervise and coordinate activities of helpers, laborers, or material movers. Manager/Supervisors are generally found in smaller establishments where they perform both supervisory and management functions, such as accounting, marketing, and personnel work. In addition, Manager/Supervisors may also engage, in part, in the same hand labor as the workers they supervise. Exclude work leaders who spend 20% or more of their time at tasks similar to those of employees under their supervision and report them in the occupations which are most closely related to their specific work duties.

(82) ALL OTHER FIRST LINE SUPERVISORS AND MANAGER/SUPERVISORS- PRODUCTION, CONSTRUCTION, MAINTENANCE AND RELATED: Include all other workers in this category not classified separately above. Please identify in Section V (at the end of the form) all occupations included in this category that are numerically important and require substantial training, or are emerging due to technological changes in your industry.

INSPECTORS AND RELATED OCCUPATIONS Include in this category workers who inspect, test, grade, sort, or perform related tasks such as sampling. Exclude: 1) Management related inspectors who enforce government or company regulations; 2) Clerical (recordkeeping) samplers and weighers; and 3) Agriculture product graders and sorters - i.e., grading and sorting unprocessed food or other agricultural products.

(83) PRECISION INSPECTORS, TESTERS, AND GRADERS (ASSEMBLIES AND INSTALLATIONS INSPECTORS; ETC.): Include workers who perform precision inspecting, testing, and grading of parts, products, and equipment for defects, wear, and deviations from specifications. Most of these workers use precision measuring instruments and complex test equipment and hand tools. May make minor repairs. Workers who combine inspection and testing with major repair work should be reported as Mechanics, Installers, and Repairers.

(84) PRODUCTION INSPECTORS, TESTERS, GRADERS, SORTERS, SAMPLERS, AND WEIGHERS (LOG INSPECTORS; QUALITY CONTROL TECHNICIANS; CHIP TESTERS; PAPER SORTERS AND COUNTERS; PAPER PRODUCTS INSPECTORS; TUBE INSPECTORS; ETC.): Inspect, test, grade, sort, sample, or weigh non-agricultural raw materials or

processed, machined, fabricated or assembled parts or products. Work may be performed before, during, or after processing.

MECHANICS, INSTALLERS, AND REPAIRERS (REPAIR TECHNICIANS; ETC.; EXCLUDE MACHINE SETTERS); Include workers who repair, maintain and adjust motor vehicles, equipment, machines and tools including such work as machinery repair, auto repair and communications equipment repair. Workers may also install as well as repair equipment and machinery. Repair work may be performed on or off premises. Also include workers who do routine machinery maintenance such as oiling, changing parts (blades, rollers, etc.) and filling reservoirs. Workers who only perform routine setting and adjusting of production machinery are excluded and should be reported in the Machine Setter/Operative group.

(85) MACHINERY MAINTENANCE MECHANICS, WATER OR POWER GENERATION PLANT (WATER TREATMENT PLANT REPAIRERS; POWERHOUSE MECHANICS; ETC.): Install, adjust, repair, and maintain machinery in power generating stations and water treatment plants. Duties include the repair and maintenance of the mechanical elements of generators, waterwheels, water-inlet controls, and piping in generating stations; steam boilers, condensers, pumps, compressors, and similar equipment in gas manufacturing plants; and equipment used to process and distribute water for human consumption and industrial use.

(86) ALL OTHER MACHINERY MAINTENANCE MECHANICS (PUMP MECHANICS; ETC.): Include all other Machinery Maintenance Mechanics not classified separately above. Machinery Maintenance Mechanics repair and maintain the operating condition of industrial production and processing machinery. Duties include repairing in accordance with diagrams, operating manuals, or manufacturer's specifications, machinery and mechanical equipment, such as pumps, conveyor systems, and motors. Exclude Millwrights and Mobile Heavy Equipment Mechanics, such as crane, bulldozer, grader, or conveyor mechanics. Please identify in Section V (at the end of the form) all occupations included in this category that are numerically important and require substantial training, or are emerging due to technological changes in your industry.

(87) MILLWRIGHTS (MACHINERY ERECTORS; ETC.): Install new machinery and heavy equipment according to layout plans, blueprints, and other drawings in an establishment and dismantle and move machinery and heavy equipment when changes in plant layout are required. Use a variety of hand tools, hoists, dollies, and trucks. May construct foundations for machines.

(88) MACHINERY MAINTENANCE WORKERS (MACHINE OILERS; BELT CHANGERS; BLADE CHANGERS; ETC.): Perform routine maintenance of machinery, such as changing of parts and lubrication of machinery. Exclude workers who repair machinery.

(89) MAINTENANCE REPAIRERS, GENERAL UTILITY: Perform work involving two or more maintenance skills to keep the machines, mechanical equipment, and/or structure of an establishment in repair. This occupation is generally found in a small establishment where specialization in maintenance work is impractical. Duties may involve pipefitting, boilermaking, insulating, welding, machining, machine and equipment repairing, carpentry, and electrical work, as well as planning and laying out of work relating to repairs; repairing electrical and/or mechanical equipment; installing, aligning and balancing new equipment; and repairing buildings, floors, or stairs.

(90) AUTOMOTIVE MECHANICS (TUNE-UP MECHANICS; TRANSMISSION SPECIALISTS; BRAKE MECHANICS; ETC.): Adjust, repair, and overhaul automotive vehicles. May be designated according to specialties, such as Brake Repairers, Transmission Mechanics, or Front-end Mechanics. Exclude Auto Body Repairers, Bus and Truck Mechanics, Diesel Engine Specialists, and Electrical Systems Specialists.

(91) **BUS AND TRUCK MECHANICS AND DIESEL ENGINE SPECIALISTS (INDUSTRIAL TRUCK MECHANICS; ETC.):** Repair and maintain the operating condition of trucks, buses, and all types of diesel engines. Also include those mechanics working primarily with automobile diesel engines.

(92) **PRECISION INSTRUMENT REPAIRERS (OPTICAL INSTRUMENT REPAIRERS; ELECTRICAL INSTRUMENT REPAIRERS; ETC.):** Install, test, repair, maintain, and adjust indicating, recording, telemetering, and controlling instruments used to measure and control variables, such as pressure, flow, temperature, motion, force, and chemical composition. Include instrument repairers who repair, calibrate, and test instruments, such as voltmeters, ammeters, and galvanometers.

(93) **ALL OTHER MECHANICS, INSTALLERS, AND REPAIRERS (MOBILE HEAVY EQUIPMENT OPERATORS; HEATING, AIR CONDITIONING, AND REFRIGERATION MECHANICS AND INSTALLERS; ETC.):** Include all other workers in this category not classified separately above. Please identify in Section V (at the end of the form) all occupations included in this category that are numerically important and require substantial training, or are emerging due to technological changes in your industry.

CONSTRUCTION TRADES AND EXTRACTIVE OCCUPATIONS, EXCEPT MATERIAL MOVING (EXCLUDE HELPERS AND LABORERS) Include in this group workers constructing, altering, and maintaining buildings, other structures, bridges, pipelines, and similar projects. The construction/maintenance work performed by these workers is found in many establishments, although the majority of these workers work for construction firms. Also include extractive workers, such as Blasters, Oil Well Drillers, and Mining Operatives. Exclude helpers and laborers.

(94) **CARPENTERS:** Construct, erect, install and repair structures, fixtures and equipment of wood, plywood, and wallboard, using carpentry tools and woodworking machines.

(95) **ELECTRICIANS:** Install, maintain, and repair wiring, electrical equipment, and fixtures. Insure that work is in accordance with relevant codes. May read blueprints. Include Protective Signal Installers and Repairers and Street Light Servicicers.

(96) **PAINTERS AND PAPERHANGERS, CONSTRUCTION AND MAINTENANCE:** Painters: Paint walls, equipment, buildings, bridges, and other structural surfaces using brushes, rollers, and spray guns. May mix colors or oils to obtain desired color or consistency. Paperhangers: Cover interior walls and ceilings of rooms with decorative wallpaper or fabric.

(97) **PLUMBERS, PIPEFITTERS, AND STEAMFITTERS:** Assemble, install, alter and repair pipe systems (metal, plastic, ceramic, composition, etc.) that carry water, steam, air, or other liquids or gases.

(98) **ALL OTHER CONSTRUCTION AND EXTRACTIVE WORKERS, EXCEPT HELPERS:** Include all other workers in this category not classified separately above.

PRECISION PRODUCTION OCCUPATIONS (EXCLUDE PRECISION ASSEMBLERS AND REPORT THEM IN THE HANDWORKING SECTION) Include persons whose work requires a high degree of precision and usually an ability to interpret detailed specifications and instructions and to use independent judgment and knowledge gained through experience and training. Precision work may be accomplished either by hand or hand-held tools (or) by using various types of machinery. Normally substantial training, either classroom or on the job is required to reach the "journey" level. In most cases, training of six months to several years or more is required. Precision assembling occupations are located in the Hand Working (including assemblers and fabricators) section found later in the form. Precision Inspectors and Testers should be reported in the earlier inspecting category. The occupations in this category are ordered according to material: metal, wood, textile, printing, food and a residual "all other" category.

(99) **TOOL AND DIE MAKERS:** Analyze variety of specifications, lay out metal stock, set up and operate machine tools, and fit and assemble parts to make and repair dies, cutting tools, jigs, fixtures, gauges, and machinist's hand tools. Include Paper Die Maker and Die Sinker. Exclude Die Setters.

(100) **MACHINISTS:** Set up and operate machine tools and fit and assemble parts to make or repair metal parts, mechanisms, tools or machines of an establishment applying knowledge of mechanics, shop mathematics, metal properties, and layout machining procedures. Study specifications, such as blueprints, sketch, or description of part to be replaced, and plan sequence of operations.

(101) **ALL OTHER PRECISION METAL WORKERS (PRECISION ETCHERS AND ENGRAVERS, HAND OR MACHINE; ETC.):** Include all other workers in this category not classified separately above. Please identify in Section V (at the end of the form) all occupations included in this category that are numerically important and require substantial training, or are emerging due to technological changes in your industry.

(102) **CAMERA OPERATORS (LITHOGRAPHIC PHOTOGRAPHERS; LINE CAMERA OPERATORS; HALFTONE OPERATORS; COLOR SEPARATION PHOTOGRAPHERS; ETC.):** Operate process camera and related darkroom equipment to photograph and develop negatives of material to be printed.

(103) **SCANNER OPERATORS (LASER-BEAM-COLOR-SCANNER OPERATORS; ETC.):** Operate electronic or computerized scanning equipment to produce and screen film separations of photographs or art for use in producing lithographic printing plates. Evaluate and correct for deficiencies in the film.

(104) **ALL OTHER PRECISION WORKERS (DIE MOUNTERS; PRECISION WOOD PATTERNMAKERS; ETC.):** Include all other workers in this category not classified separately above. Please identify in Section V (at the end of the form) all occupations included in this category that are numerically important and require substantial training, or are emerging due to technological changes in your industry.

MACHINE SETTERS, SET-UP OPERATORS, OPERATORS, AND TENDERS Include in this group workers who set up, operate, or tend equipment or machinery (usually large production machinery). In the following occupational categories workers who set up or set up and operate machines are grouped separately from workers who operate or tend machines.

(105) **MACHINE FORMING OPERATORS AND TENDERS, METAL AND PLASTIC (METAL PUNCH PRESS OPERATORS; ETC.):** Operate or tend one type of forming machine which has previously been set up. Workers who operate more than one type of forming machine should be reported with Combination Machine Tool Operators and Tenders, Metal and Plastic. Types of

forming machines include: punching machines; rolling machines; shear and siltter machines; press and press brake machines; extruding and drawing machines; forging machines.

(106) ALL OTHER METAL AND PLASTIC (CUT, FORM, FABRICATE OR PROCESS) MACHINE SETTERS AND SET-UP OPERATORS: Include all other workers in this category not classified separately above. Please identify in Section V (at the end of the form) all occupations included in this category that are numerically important and require substantial training, or are emerging due to technological changes in your industry.

(107) ALL OTHER METAL AND PLASTIC (CUT, FORM, FABRICATE OR PROCESS) MACHINE OPERATORS AND TENDERS: Include all other workers in this category not classified separately above.

(108) PRINTING PRESS MACHINE SETTERS AND SET-UP OPERATORS (WET-PLATE PHOTOGRAPHERS; SCANNER OPERATORS; IMPOSING MACHINE OPERATORS; ETC.): Set up or set up and operate various types of printing machines, such as offset lithographic presses, letter or letterset presses, flexographic presses, or gravure presses to produce printed material such as books, manuals, or pamphlets.

(109) SPECIALTY MATERIALS PRINTING MACHINE SETTERS AND SET-UP OPERATORS (EMBOSSING, STAMPING AND/OR MARKING MACHINE OPERATORS; STRIPING MACHINE OPERATORS; FLEXOGRAPHIC PRESS OPERATORS; PAPER PRODUCTS PRINTERS; WALLPAPER PRINTERS; ETC.): Set up or set up and operate machines to print designs or multicolored identification symbols or trademarks on materials (other than published and related printed materials, such as pamphlets, books, magazines, and business cards). Exclude printers using screen printing techniques.

(110) SCREEN PRINTING MACHINE SETTERS AND SET-UP OPERATORS (SCREEN OR STENCIL PRINTERS; ETC.): Set up or set up and operate screen printing machines to print designs onto articles and materials, such as glass or plastic containers or ware, cloth, and paper.

(111) ALL OTHER PRINTING RELATED SETTERS AND SET-UP OPERATORS: Include all other workers in this category not classified separately above. Please identify in Section V (at the end of the form) all occupations included in this category that are numerically important and require substantial training, or are emerging due to technological changes in your industry.

(112) PRINTING PRESS MACHINE OPERATORS AND TENDERS (PRINTER-SLOTTER OPERATORS; ETC.): Operate or tend various types of printing machines, such as offset lithographic presses, letter or letterset presses, flexographic or gravure presses to produce print on paper or other materials such as plastic, cloth, or rubber.

(113) BINDERY MACHINE OPERATORS: Operate or tend book and other related binding machines that round, back, case, line stitch, press, fold, trim, or perform other binding operations. Exclude Hand Bindery Workers and Machine Feeders and Offbearers and report them in the Material Handling section.

(114) ALL OTHER PRINTING, BINDING, AND RELATED MACHINE OPERATORS AND TENDERS (PHOTOENGRAVING AND LITHOGRAPHING MACHINE OPERATORS; LINOTYPE OPERATORS; ETC.): Include all other workers in this category not classified separately above. Please identify in Section V (at the end of the form) all occupations included in this category that are numerically important and require substantial training, or are emerging due to technological changes in your industry.

- (115) **PAPER GOODS MACHINE SETTERS AND SET-UP OPERATORS (CONVOLUTE TUBE WINDERS; BAG MACHINE SET-UP OPERATORS; ETC.):** Set up or set up and operate paper goods machines that perform a variety of functions, such as converting, sawing, corrugating, banding, wrapping, boxing, stitching, forming, or sealing paper or paperboard sheets into products, such as toilet tissue, towels, napkins, bags, envelopes, tubing, cartons, wax rolls, and containers according to specifications.
- (116) **BOILER OPERATORS AND TENDERS, LOW PRESSURE (LOW PRESSURE FIRERS; ETC.):** Operate or tend low pressure stationary steam boilers and auxiliary steam equipment, such as pumps, compressors and air conditioning equipment, to supply steam heat for office buildings, apartment houses, or industrial establishments; to maintain steam at specified pressure aboard marine vessels; or to generate and supply compressed air for operation of pneumatic tools, hoists, and air lances.
- (117) **CHEMICAL EQUIPMENT CONTROLLERS AND OPERATORS (CAUSTICISERS; ETC.):** Control or operate equipment to control chemical changes or reactions in the processing of industrial or consumer products. Typical equipment used are reaction kettles, catalytic converters, continuous or batch treating equipment, saturator tanks, electrolytic cells, reactor vessels, recovery units, and fermentation chambers.
- (118) **CHEMICAL EQUIPMENT TENDERS:** Tend equipment in which a chemical change or reaction takes place. Typical equipment used are devulcanizers, batch stills, fermenting tanks, steam-jacketed kettles, and reactor vessels to process chemical substances into industrial or consumer products.
- (119) **CUTTING AND SLICING MACHINE SETTERS AND SET-UP OPERATORS (CHIPPERS; SLITTER-SCORER-CUT OFF OPERATORS; DIE CUTTING MACHINE SET-UP OPERATORS; ETC.):** Set up or set up and operate machines that cut or slice materials, such as glass, stone, cork, rubber, crepe, wallboard, and fibrous insulating board, to specified dimensions for further processing. Exclude Wood Sawyers, Metal or Plastic Sawyers, Shear or Slitter Operators, and Textile Setters and Set-up Operators.
- (120) **CUTTING AND SLICING MACHINE OPERATORS AND TENDERS (CORNER CUTTERS; CUTTING AND CREASING PRESS OPERATORS; SLOTTING OPERATORS; PANEL MACHINE OPERATORS; SHREDDER TENDERS; DIE CUTTING MACHINE OPERATORS; TUBE CUTTERS; SLITTING MACHINE OPERATORS; ETC.):** Operate or tend machines to cut or slice any of a wide variety of products or materials, such as tobacco, food, paper, roofing slate, glass, stone, rubber, cork, and insulating material. Exclude metal, wood, and plastic sawing machine operators and tenders, and Textile Cutting Machine Operators and Tenders.
- (121) **COATING, PAINTING, AND SPRAYING MACHINE SETTERS AND SET-UP OPERATORS (WAXING MACHINE OPERATORS; ABRASIVE COATING MACHINE SET-UP OPERATORS; ETC.):** Set up or set up and operate machines to coat or paint any of a wide variety of products, such as food products, glassware, cloth, ceramic, metal, plastic, paper, and wood products with lacquer, silver and copper solution, rubber, paint, varnish, glaze, enamel, oil, or rustproofing materials. Exclude setters and set-up operators who coat or plate metal or plastic with metal using electrolytic or nonelectrolytic processes.
- (122) **COATING, PAINTING, AND SPRAYING MACHINE OPERATORS AND TENDERS (SUPERCALENDER OPERATORS; PAPER COATERS; ETC.):** Coating Machine Operators or Tenders: Operate or tend machines to coat any of a wide variety of items, such as coating food products with sugar, chocolate and butter, coating paper and paper products with chemical solutions, wax, and glazes, or coating fabric with rubber or plastic. Painting and Spraying Machine Operators and Tenders: Operate or tend machines to spray or paint decorative, protective, or other finish or coating, such as adhesive, lacquer, paint, stain, latex, preservative, or oil, to any of a wide variety of items or materials,

such as wood and wood products, ceramics, and glass. This occupation includes workers who apply coating or finish to products with solutions or materials preparatory to consumer use or further processing.

(123) CEMENTING AND GLUING MACHINE OPERATORS AND TENDERS (ENDING MACHINE OPERATORS; WRAPPING MACHINE OPERATORS; BOX SEALING MACHINE OPERATORS; TAPING MACHINE OPERATORS; ETC.): Operate or tend cementing and gluing machines to join together items, such as veneer sheets into plywood; paper to glass-wool, cardboard or paper; rubber and rubberized fabric parts; plastic; and simulated leather or other materials, to form completed product or to form product for further processing.

(124) CLEANING, WASHING, AND PICKLING EQUIPMENT OPERATORS AND TENDERS (BROWN STOCK WASHERS; BLOW PIT OPERATORS; PULP BLEACHER OPERATORS; ETC.): Operate or tend machines to wash or clean items, such as barrels or kegs, glass products, tin plate surfaces, dried fruit, pulp, animal stock, coal, manufactured articles, plastic, or rubber to remove impurities preparatory to further processing.

(125) SEPARATING, FILTERING, CLARIFYING, PRECIPITATING, AND STILL MACHINE OPERATORS AND TENDERS (DECKER OPERATORS; EVAPORATOR OPERATORS; ETC.): Operate or tend machines, such as filter presses, shaker screens, centrifuges, condenser tubes, precipitator tanks, fermenting tanks, evaporating tanks, scrubbing towers and batch stills to extract, sort, or separate liquids, gases, or solid materials from other materials in order to recover a refined product or material. Exclude workers who operate equipment to control chemical changes or reactions.

(126) CRUSHING, GRINDING, MIXING, AND BLENDING MACHINE OPERATORS AND TENDERS (PULPERS; MIXING TUMBLER OPERATORS; COATING MIXER TENDERS; BEATER ENGINEER; PULP REFINER OPERATORS; WOOD GRINDER OPERATORS; ETC.): Crushing, Grinding, and Polishing Machine Operators and Tenders: Operate or tend machines to crush or grind any of a wide variety of materials, such as coal, glass, plastic, dried fruit, grain, stone, chemicals, food, or rubber or operate or tend machines that buff and polish materials or products, such as stone, glass, slate, plastic or metal trim, bowling balls, or eyeglasses. Mixing and Blending Machine Operators and Tenders: Operate or tend machines to mix or blend any of a wide variety of materials such as spices, dough batter, tobacco, fruit juices, chemicals, livestock feed, food products, color pigments, or explosive ingredients.

(127) EXTRUDING, FORMING, PRESSING, AND COMPACTING MACHINE SETTERS AND SET-UP OPERATORS (COMPRESSORS; ETC.): Set up or set up and operate machines, such as glass forming machines, plodder machines, and tuber machines to manufacture any of a wide variety of products, such as soap bars, formed rubber, glassware, food, brick, and tile, by extruding, compressing or compacting operations.

(128) EXTRUDING, FORMING, PRESSING, AND COMPACTING MACHINE OPERATORS AND TENDERS (WET MACHINE TENDERS; LAP MACHINE TENDERS; WET PRESS TENDERS; PAPER BALING MACHINE OPERATORS; MOLDING MACHINE OPERATORS; ETC.): Operate or tend machines to shape and form any of a wide variety of manufactured products, such as glass bulbs, molded food and candy, rubber goods, clay products, wax products, tobacco plugs, cosmetics, or paper products by means of extruding, compressing or compacting.

(129) PACKAGING AND FILLING MACHINE OPERATORS AND TENDERS (PRODUCTION PACKAGERS; INSULATION PACKERS; ETC.): Operate or tend machines, such as filling machines, casing running machines, ham rolling machines, preservative filling machines, baling machines, wrapping machines, and stuffing machines to prepare industrial or consumer products,

such as gas cylinders, meat and other food products, tobacco, insulation, ammunition, stuffed toys and athletic equipment, and upholstered pads, as end products or for storage and shipment.

(130) ALL OTHER MACHINE SETTERS AND SET-UP OPERATORS (COMBINER OPERATORS; CORRUGATOR OPERATORS; SLITTER, CREASER, SLOTTER OPERATORS; ETC.): Include all other workers in this category not classified separately above. Please identify in Section V (at the end of the form) all occupations included in this category that are numerically important and require substantial training, or are emerging due to technological changes in your industry.

(131) ALL OTHER MACHINE OPERATORS AND TENDERS (POWER BARKER OPERATORS; STAPLING MACHINE OPERATORS; LAYBOY TENDERS; DIGESTER OPERATORS; CARTON FORMING MACHINE OPERATORS; BAG MACHINE OPERATORS; FOLDING MACHINE OPERATORS; ENVELOPE MACHINE OPERATORS; FOURDRINIER TENDERS; BACK TENDERS; REEL AND REWINDER OPERATORS; DRIER OPERATORS; ETC.): Include all other workers in this category not classified separately above. Please identify in Section V (at the end of the form) all occupations included in this category that are numerically important and require substantial training, or are emerging due to technological changes in your industry.

HAND WORKING OCCUPATIONS, INCLUDING ASSEMBLERS AND FABRICATORS
Include workers who perform hand assembling, fabricating, finishing or other handwork. This category includes a wide variety of handwork in addition to assembling, such as welding, cutting, molding, painting, grinding and sewing. Although precision assembling is included in this category, workers performing other types of precision handwork such as patternmaking, precision molding, layout, tailoring, design painting and butchering are excluded and should be reported in the earlier "Precision" category.

(132) WELDERS AND CUTTERS (LEADBURNERS; ARC-CUTTERS; WELDER-FITTERS; TACK WELDERS; ETC.): Use hand welding and flamecutting equipment, such as arc welders, gas welders, and gas torches to weld together metal components of such products as pipelines, automobiles, boilers, and ships or join together components of fabricated sheet metal assemblies or cut, trim, or scarf metal objects to dimensions as specified by layout, work orders, or blueprints.

(133) CUTTERS AND TRIMMERS, HAND: Cut and trim using hand tools or hand held power tools any of a wide variety of manufactured items, such as stone, glass, rubber, or fabrics. Include such occupations as Oval or Circular Glass Cutters, Rock Splitters, and Tire Trimmers.

(134) ASSEMBLERS AND FABRICATORS, EXCEPT MACHINE, ELECTRICAL, ELECTRONIC, AND PRECISION (BOX MAKERS, PAPERBOARD; PAPER NOVELTY MAKERS; ETC.): Assemble and/or fit together parts to form complete units or subassemblies at a bench, conveyor line, or on the floor. Work may involve the use of hand tools, power tools and special equipment in order to carry out fitting and assembly operations. Included in this occupation are assemblers whose duties are of a non-precision nature. Exclude electrical, electronic, machine and precision assemblers, and workers who perform specialized operations exclusively as a part of assembly operations, such as riveting, welding, soldering, machining, or sawing.

(135) ALL OTHER HAND WORKERS: Include all other workers in this category not classified separately above. Please identify in Section V (at the end of the form) all occupations included in this category that are numerically important and require substantial training, or are emerging due to technological changes in your industry.

PLANT AND SYSTEM OCCUPATIONS *Include workers who control or operate systems of machines or entire processes through use of control panels or centralized controls. Plant and System Operators control such systems as chemical, petroleum, or water treatment systems.*

(136) WATER AND LIQUID WASTE TREATMENT PLANT AND SYSTEM OPERATORS: Operate and/or control an entire process or system, often through the use of panelboards, control boards, or semi-automatic equipment, to transfer or treat water and/or liquid waste.

(137) CHEMICAL PLANT AND SYSTEM OPERATORS (CHIEF OPERATORS; ETC.): Control or operate an entire chemical process or system of machines, such as reduction pots and heated air towers, through the use of panel boards, control boards, semi-automatic equipment, etc.

(138) POWER DISTRIBUTORS AND DISPATCHERS (SUBSTATION OPERATORS; LOAD DISPATCHERS; SWITCHBOARD AND CONTROL ROOM OPERATORS; ETC.): Coordinate, regulate, or distribute electricity or steam in generating stations, substations and over electric power lines. May work for utility company or in large industrial establishments. In addition to distributing power, some of this worker's time may be spent generating power.

(139) STATIONARY ENGINEERS (OPERATING ENGINEERS-STATIONARY ENGINES; ETC.): Operate and maintain stationary engines and mechanical equipment to provide utilities for buildings or industrial processes. Operate equipment such as steam engines, generators, motors, turbines, and steam boilers.

(140) ALL OTHER PLANT AND SYSTEM OPERATORS (RECOVERY OPERATORS; ETC.): Include all other workers in this category not classified separately above. Please identify in Section V (at the end of the form) all occupations included in this category that are numerically important and require substantial training, or are emerging due to technological changes in your industry.

TRANSPORTATION AND MATERIAL MOVING MACHINE AND VEHICLE OPERATORS *Include in this group workers who operate or control vehicles used to transport people or materials. Also included are transportation related workers such as Bridge Tenders, Service Station Attendants, and Parking Lot Attendants. Material moving also includes operation of equipment such as conveyors, pumps, cranes, and hoists.*

(141) TRUCK DRIVERS, HEAVY OR TRACTOR TRAILER: Drive tractor-trailer combination or truck with a capacity of at least 3 tons to transport and deliver goods, livestock, or materials in liquid, loose or packaged form. May be required to unload truck.

(142) TRUCK DRIVERS, LIGHT- INCLUDE DELIVERY AND ROUTE WORKERS: Drive truck, van, or automobile with a capacity under 3 tons. May drive light truck to deliver or pick-up merchandise and load and unload truck.

(143) ALL OTHER TRANSPORTATION AND RELATED WORKERS: Include all other workers in this category not classified separately above.

(144) CRANE AND TOWER OPERATORS (BRIDGE OR GANTRY CRANE OPERATORS; LOCOMOTIVE CRANE OPERATORS; TRACTOR CRANE OPERATORS; ETC.): Operate mechanical boom and cable or tower and cable equipment to lift and move materials, machines, or products in many directions. Exclude Dragline Operators.

(145) **INDUSTRIAL TRUCK AND TRACTOR OPERATORS (FORKLIFT TRUCK OPERATORS; ELECTRIC TRUCK OPERATORS; ETC.):** Operate gasoline or electric powered industrial trucks or tractors equipped with fork lift, elevated platform, or trailer hitch to move materials in an establishment, warehouse, storage yard, factory, or at a construction site. Exclude Logging Tractor Operators.

(146) **CONVEYOR OPERATORS AND TENDERS (EXCLUDE LOADERS AND FEEDERS):** Control or tend conveyors or conveyor systems that move materials or products to and from stockpiles, processing stations, departments, vehicles, and underground workings. May control speed and routing of materials or products.

(147) **ALL OTHER MATERIAL MOVING EQUIPMENT OPERATORS:** Include all other workers in this category not classified separately above.

HELPERS, LABORERS, AND MATERIAL MOVERS, HAND- EXCLUDE AGRICULTURE AND FORESTRY LABORERS Include workers performing non-machine tasks generally of a routine nature. These workers help the production, construction, operating, and maintenance workers covered in the earlier sections. Although they do not operate or tend the machinery or equipment directly, these workers assist in the work of the establishment by machine feeding and offbearing, moving materials (manually), or loading and unloading. They may also clean and wash vehicles and equipment. Handworkers (see earlier section) are distinguished from the workers in this group because they are involved directly in the making of a product.

(148) **HELPERS- MECHANICS AND REPAIRERS:** Help mechanics and repairers in maintenance, parts replacement, and repair of vehicles, industrial machinery, and electrical and electronic equipment. Perform duties such as furnishing tools, materials and supplies to other workers; cleaning work area, machines, and tools; and holding materials or tools for other workers.

(149) **HELPERS- CONSTRUCTION TRADES AND EXTRACTIVE WORKERS (CARPENTER HELPERS; BRICKMASON HELPERS; PAINTER HELPERS; ETC.):** Help workers in the construction trades, such as Brickmasons, Carpenters, Electricians, Painters, Plumbers, and Surveyors. Perform duties such as furnishing tools, materials, and supplies to other workers; cleaning work areas, machines, and tools; and holding materials or tools for other workers.

(150) **MACHINE FEEDERS AND OFFBEARERS (DIGESTER OPERATOR HELPERS; PAPER BAG PRESS OPERATORS; PRINTER-SLOTTER FEEDERS; ETC.):** Feed materials into machine or remove materials from machines or equipment that is automatic or tended by other workers.

(151) **FREIGHT, STOCK, AND MATERIAL MOVERS, HAND (MATERIAL HANDLERS; ETC.):** Include workers who move materials manually. Freight, stock and material movers (hand) work in a variety of settings such as warehouses, production areas, stockrooms, or shipping departments.

(152) **HAND PACKERS AND PACKAGERS:** Pack or package by hand a wide variety of products and materials. Exclude workers whose jobs require more than minimum training.

(153) **ALL OTHER HELPERS, LABORERS, AND MATERIAL MOVERS, HAND (MACHINE OPERATOR HELPERS; VEHICLE WASHERS AND EQUIPMENT CLEANERS; SCRAPERS AND STRIPPERS; ETC.):** Include all other workers in this category not classified separately above.

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